

REMARKS

This Amendment is responsive to the Office Action identified above, and is responsive in any other manner indicated below.

PENDING CLAIMS

Claims 1-36 and 50-72 were pending, under consideration and subjected to examination in the Office Action. Appropriate claims have been amended, canceled and/or added (without prejudice or disclaimer) in order to adjust a clarity and/or focus of Applicant's claimed invention. For convenience, an Appendix is attached herewith having ones of the claims presented with **bolded text** indicating guidance and/or claim amendments/differences from previously presented claims. The claims submitted herein have been renumbered to reflect proper reissue amendment format under 37 CFR §1.173. At entry of this paper, Claims 1-59 (equivalent to previously-pending Claims 1-36 and 50-72) and new Claims 60-63 will be pending for further consideration and examination in the application.

DOUBLE PATENTING REJECTION

Given that the prior double patenting rejections have not been repeated within the present Office Action, and given that remarks near the bottom of page 3 of the Office Action only very briefly mention such prior double patenting rejection, it appears that the prior double patenting rejections have been overcome/withdrawn. Applicant and the undersigned respectfully thank the Examiner for withdrawal of such rejections.

CLAIMS 1-59

Except for the issue of the allegedly defective oath/declaration (treated ahead), Claims 1-59 (equivalent to previously-pending Claims 1-36 and 50-62) are not in dispute; thus, such claims are not amended from Applicant's prior submission (except for renumbering in proper reissue amendment format). Applicant and the undersigned respectfully thank the Examiner for apparent approval of Claims 1-59.

RECAPTURE REJECTION - TRAVERSED

For the purposes of the following discussions, the previously-pending claim numbers will be used to identify the specific claims now renumbered herein.

The recapture rejection of Claims 63-72 as set forth within the section numbered "2" on page 2 of the Office Action (and/or within prior Office Actions) is respectfully traversed.

ex parte Eggert discussion:

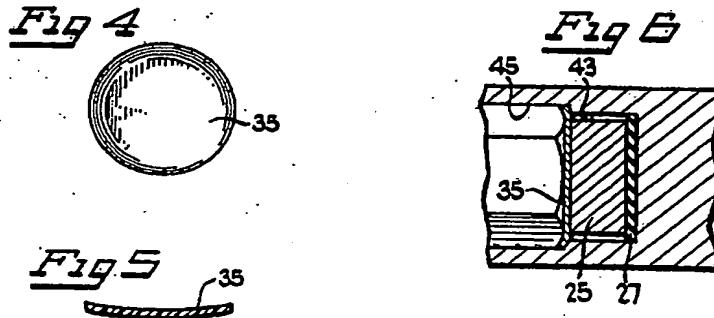
Attention is directed to the relatively-recent precedential USPTO Board opinion of *ex parte Eggert*, Appeal No. 2001-0790, decided 29 May 2003, concerning a differing US Patent No. 5,577,426. In such case, the Board **REVERSED** the Examiner's attempt to apply recapture to reject the application. Background teaching of the *Eggert* opinion is relevant for understanding of traversal/rebuttal of the present rejection in Applicant's application. Hence, discussion is now provided herewith for convenience.

The first embodiment is shown in *Egger*'s FIGS. 2 and 3 as follows:



Figure 2 shows a bit holder 20 having a magnet 25 held in place by a retainer 26 which is made of suitable metal and is shaped as a fiat circular disk. See column 2, line 53 - column 3, line 5 of the *Eggert* patent. Figure 3 is a view of a vertical section taken along the line 3-3 in Figure 2. Figure 3 shows the circular retainer 26 friction fitted in an axial hexagonal bore 23.

The second embodiment is shown in *Eggerl's* FIGS. 4, 5 and 6 as follows:



Second Embodiment of *Eggerl*

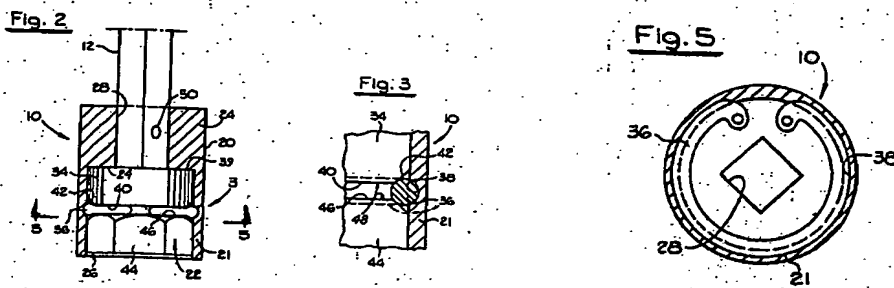
In the second embodiment, an alternative bit holder is shown which is similar to bit holder 20 in the first embodiment, except the nature of the bore and retainer are different. More specifically, the bit holder of Figure 6 has a cylindrical body which has a circularly cylindrical axial bore 43 in addition to a hexagonal bore 45. See column 3, lines 48-55.

Figure 6 shows that magnet 25 is dimensioned to fit freely in the cylindrical bore 43 and is held in place by a retainer 35 friction fitted in the hexagonal bore 45. See column 3, lines 59-64. Figures 4-6 show that the retainer 35 is formed of suitable plastic material and generally bowl-shaped and convex toward the magnet. See column 3, lines 35-47.

Eggerl's original independent claim 1 recited the language "retaining structure in contact with the outer surface of said magnet and interference fitted in said bore to

retain said magnet in said bore." Original claim 1's limitations, thus, encompassed *Eggert's* both first and second embodiments.

In a rejection, the *Eggert* Examiner applied Parsons, US Patent No. 4,663,998 (shown as follows), for a teaching of the broadly claimed retaining structure.



Parsons Embodiment

Parsons shows in Figure 2 an axial sectional view of a magnetic wrench socket 10. Figure 2 shows magnet 34 held in a cylindrical bore by means of a C ring 36. See column 1, lines 35-65, of Parsons. Figure 3 of Parsons is a large scale sectional view of a portion of Figure 2 indicated by arrow 3. Figure 3 shows the C ring 36 releasably held in a peripheral groove 38 formed in the wall 21. See column I, lines 29 and 30, and lines 60-65. Figure 5 of Parsons shows a sectional view taken at line 5-5 of Figure 2 and shows C ring 36 releasably held in peripheral groove 38 formed in the wall 21. See column 1, lines 34 and 35, and lines 60-65. Thus, Parsons describes what in essence is a third embodiment covered by the language of *Eggert's* original claim 1.

In response to the Examiner's rejections applying Parsons to the claimed retaining structure, *Eggert's* applicant eventually rewrote dependent claim 6 into independent form. Claim 6 added the limitation of "said retaining member being generally bowl-shaped and convex toward said magnet" to claim 1. This claim language corresponds only to the second embodiment disclosed in Figures 4, 5 and 6. That is, note that such non-generic language excluded *Eggert's* disclosed first embodiment which is a flat, circular metal disk 6. The Examiner entered the amendment and allowed the claim and the *Eggert* patent issued.

Subsequently, in the *Eggert* reissue, *Eggert's* applicant attempted to correct the overly-narrow claim limitation by reissue. More particularly, *Eggert's* applicant presented new reissue independent claims 15 and 22 which were of sufficient scope to not only cover both of their disclosed FIGS. 2-3 and FIGS. 4-6 embodiments, but also distinguish over the C ring of Parsons. For example, the new language of claim 15 read "a discrete retaining member friction fitted in said bore outboard of said magnet and substantially covering said outer surface of said magnet to retain said magnet in the bore." The scope of this language included both the first and second embodiments of *Eggert's* invention, and as recognized by the *Eggert* Examiner, was free of the prior art of record.

Eggert's application (like the present application), was then rejected based on the "reissue recapture rule". On a first round of USPTO appeal, the *Eggert* Examiner asked an initial 3-person USPTO Board to impose a per se rule of reissue recapture to prevent the *Eggert* Appellant from retreating from any claim limitation determined to have secured allowance of the original patent. The Examiner LOST in the first

round of appeal. After losing upon decision of a 3-person Board, the *Eggert* Examiner got a second round full-panel reconsideration and urged the full Board to reverse the prior decision and to adopt the *per se* rule. The full Board also rejected the *per se* rule, and allowed the *Eggert* Appellant to use reissue to retreat from the original overly limiting claim limitations.

The effect was that *Eggert's* Appellant was not limited to the "retaining member being generally bowl-shaped and convex toward said magnet" limitations of the patented claims. Instead, *Eggert's* applicant was able to obtain broader new reissue independent claims 15 and 22 which recited, for example, "a discrete retaining member friction fitted in said bore outboard of said magnet and substantially covering said outer surface of said magnet to retain said magnet in the bore." The scope of this language included both of *Eggert's* FIGs. 1-2 and FIGs. 4-6 embodiments. Thus, note that Reissue applicants are NOT stuck with the patented claims, but instead, Reissue may be used to supplement and/or broaden erroneous (e.g., overly restrictive) claims. This Board finding makes sense in that, if a *per se* reissue recapture rule were always applied/applicable, such would totally negate the need for a reissue procedure within the USPTO.

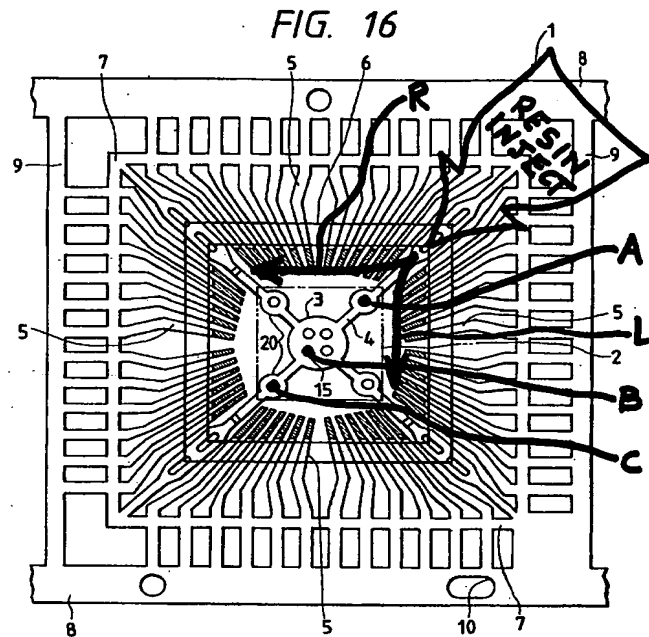
Added Claims 60-63:

Discussion turns now to the present application at hand. Presently added independent claims 60-63 will logically be discussed first to preclude application of any "*per se* reissue recapture rule" with respect to such new claims. More particularly, from a historical perspective, in reviewing the independent claims during

reissue review for the present Amendment, it has been determined that the patented claim limitations of (e.g., see claim 1) “said semiconductor chip is fixed to a part of each of said suspension leads by adhesive which is located under a peripheral portion of said semiconductor chip” are unnecessarily restrictive in scope, and thus are an “error”.

More particularly, during prosecution of the parent patent, it was argued the advantage of the foregoing was that “adhesion of the semiconductor chip to the leadframe can be sufficiently provided so as to prevent a shifting of the semiconductor chip during manufacturing.” However, it has subsequently been realized that it is NOT absolutely necessary to fix (e.g., adhere) a semiconductor chip to each suspension lead (i.e., all suspension leads) in order to prevent shifting.

More particularly, all that may be required is that the semiconductor chip be minimally fixed at **two shift-preventing positions separated from each other** to prevent shifting during manufacturing (e.g., resin encapsulation). A modified version of Applicant's FIG. 16 will be used in example explanation as follows:



Applicant's FIG. 16 (w/explanatory marked modifications)

More particularly, as one example, assume that resin is injected (during a resin encapsulation operation) from a FIG. 16 die corner opposing a point A, in a general direction as shown by the large arrow above. Such injected resin may tend to flow along one of the suspension leads (note that there are 4 suspension leads are in this example), and then upon arriving at a die corner opposing the point A,

may split and equally flow in right R and left L halves (see above FIG) down opposing sides of the die. Such splitting/equalized flow may cause offsetting (*i.e.*, balanced) torque pressures being applied to the die on opposing sides of the suspension lead. Since balanced torque pressures are applied, no significant torque pressures are applied to twist the die off of the lead frame carrier. In such a situation, fixing the die 2 minimally at two separated positions (*e.g.*, at darkened locations A and B (or B and C)) may very well be sufficient to prevent shifting.

Since it is NOT absolutely necessary to fix (*e.g.*, adhere) a semiconductor chip to **each** suspension lead (*i.e.*, all suspension leads) in order to prevent shifting, again, it is respectfully submitted that Applicant's patented claims were/are **unnecessarily and overly narrow**. In an attempt to remedy such narrowness, Applicant's new independent claims 60-63 substantially parallel the patented independent claims 1, 11, 13 and 14, respectively, but retreat from the overly-restrictive "each" language. That is, recited claims 60-63's (*e.g.*, independent claim 60's) chip is "fixed to said chip mounting portion by adhesive", and is also "fixed to a part of **each at least one** of said suspension leads by adhesive". Thus, note that such claims in effect recite a semiconductor chip fixed at **two shift-preventing positions separated from each other** to prevent shifting during manufacturing (*e.g.*, during the resin encapsulation operation).

None of the references taken alone or in combination would have disclosed or suggested Applicant's combination of features/limitations as recited in claims 60-63. That is, the chip is "fixed to said chip mounting portion by adhesive", and is also "fixed to a part of at least one of said suspension leads by adhesive", *i.e.*, at **two**

shift-preventing positions separated from each other to prevent shifting during manufacturing (e.g., during the resin encapsulation operation). Such arrangement and the fact that the adhesion locations are separated from each other is also advantageous in that it MINIMIZES an adhesion area used on a back of the chip, and thus water vapor reflow cracking is correspondingly MINIMIZED. In conclusion, it is respectfully submitted that such claims 60-63 (*i.e.*, like the *Eggert* opinion discussed above), correct the above-discussed overly-narrow claiming error (e.g., of independent claim 1), while at the same time sufficiently distinguishing over the art of record.

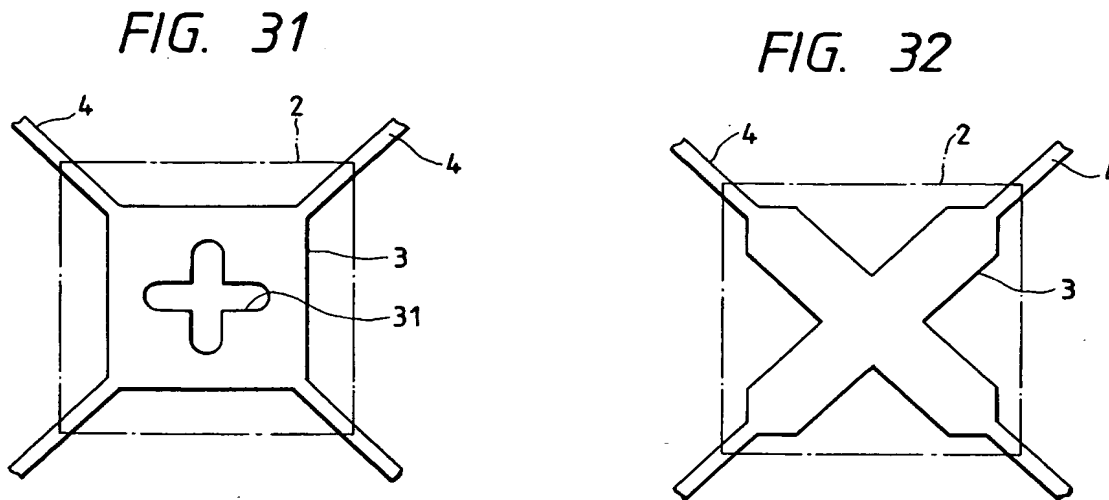
Claims 63-67:

Recapture rebuttal now continues with further discussions regarding **independent claim 63** (and claims 62-67 dependent therefrom). More particularly (like the above-discussed new renumbered claims), clarified claim 63 also contains limitations equivalent to a situation where the rear surface of the semiconductor chip is **fixed to the first and second suspension leads by an adhesive at at least two shift-preventing positions separated from each other**. For a proper understanding of claim 63, an initial discussion of patented independent claim 1 may be helpful/appropriate, and hence, such discussion is now provided herewith as follows.

More particularly, independent claim 1 recites "a leadframe having: **a chip mounting portion** for mounting said semiconductor chip; **suspension leads** unitarily formed with said chip mounting portion, a width of said chip mounting portion being

wider than a width of each of said suspension leads.” That is, note that there is both a mounting portion and suspension leads. Subsequent review of such claim related to the present reissue process revealed that such claim 1 limitations may be too narrow. More particularly, a potential infringer might (in a bid to avoid infringement) leave out the “chip mounting portion” or “flag”, and then attempt an argument that the claimed “chip mounting portion” covered “flagged” chip supporting arrangements, but did not cover “flag-less” chip supporting arrangements. Not covering a “flag-less” arrangement is another error within the present patent, which is attempted to be corrected by the present Reissue application.

Description/understanding of “flagged” verses “flag-less” may be helpful in understanding the present situation; hence, attention is now directed to the following Applicant’s FIGS. 31-32 for a “flagged” verses “flag-less” explanation:

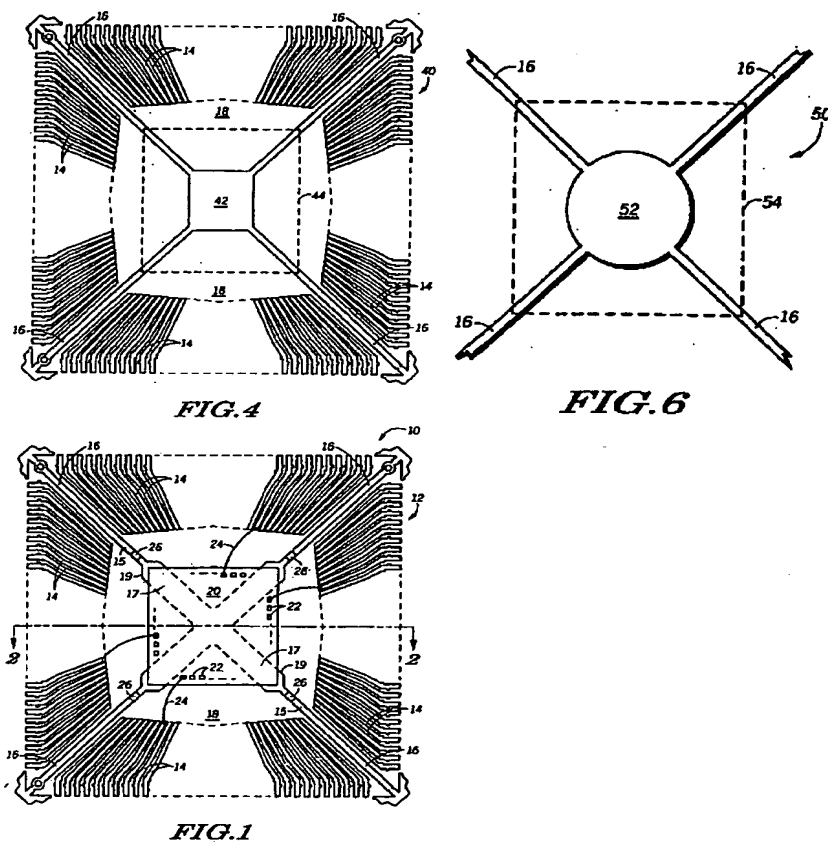


Applicant’s FIGS. 31 and 32

Applicant’s FIG. 31 represents a “flagged” arrangement as is understood in the art (*i.e.*, note that the rectangle in FIG. 31 resembles a flag; in the art, the flag may also be circular); in contrast, Applicant’s FIG. 32 represents a “flag-less” arrangement.

It is respectfully submitted that such “flag” and “flag-less” terminology is known in the art. More particularly, as one example usage in the art, Djennas *et al.*’s (U.S. Patent No. 5,327,008; of record) illustrates/describes a plurality of differing die-supporting arrangements, including rectangular mini-flag, circular mini-flag AND flag-

less arrangements. Ones relevant to the present discussions are shown in the
Djennas *et al.* FIGS. 1, 4 and 6 as follows.



Djennas et al. FIGS. 1, 4 and 6

Djennas *et al.*'s column 6, lines 14-21, describes that the above-reproduced
"FIG. 4 illustrates, in a top-down plan view, portions of a lead frame 40 having such a
mini-flag 42. Mini-flag 42 is kept smaller in area than a semiconductor die (illustrated
in phantom as line 44) to keep the total interface area between the mini-flag and a

plastic encapsulation material (not illustrated) smaller than in conventional devices.”

Next, Djennas *et al.*'s column 6, lines 45-48, describes that the above-reproduced “...FIG. 6 portions of a lead frame 50 (only partially illustrated) can include a round mini-flag 52 to support a large die (illustrated in phantom as line 54).”

Most importantly, and most relevant to the present situation, Djennas *et al.*'s column 4, lines 35-37, describes that the above-reproduced “...FIG. 1 device 10 does not employ a flag. Instead, die 20 rests on tie bars 16.” Accordingly, the Djennas *et al.* FIG. 1 arrangement is a “flag-less” arrangement somewhat similar to Applicant's FIG. 32 illustrated previously above in this paper.

Accordingly, with the above understanding of “flagged” verses “flag-less”, Applicant's present independent claim 63 (and claims dependent therefrom) is directed toward claiming a semiconductor device utilizing a “flag-less” arrangement. In terms of claim features/limitations of interest, independent claim 63 claims: “a lead frame including: a first suspension lead (see item 4 on a left side of Applicant's FIG. 32 above) for supporting said semiconductor chip, extending in a first direction; a second suspension lead (see item 4 on a right side of Applicant's FIG. 32 above) for supporting said semiconductor chip, extending in a second direction which is different from said first direction, said second suspension lead intersecting said first suspension lead; and ...wherein said semiconductor chip is disposed on and supported by **a flag-less said intersecting portion of said first and second suspension leads**, with said first and second suspension leads being unitarily formed with one another, wherein a width of each of said first and second suspension leads supporting said semiconductor chip at the vicinity of said

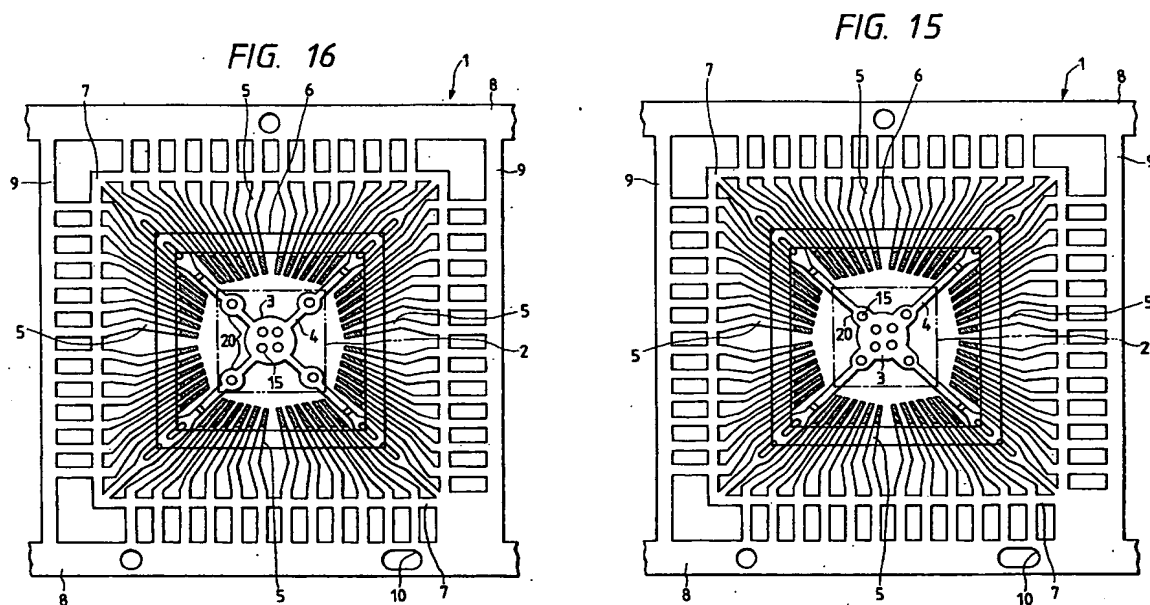
intersecting portion is wider than that of each said first and second suspension leads at vicinities beyond said semiconductor chip, and widened portions of said first and second suspension leads are smaller than said semiconductor chip.” Further, independent claim 63 also has the adhesion features/limitations discussed above with respect to other ones of Applicant’s claims, *i.e.*, “wherein said rear surface of said semiconductor chip is fixed to said first and second suspension leads by an adhesive at at least two shift-preventing positions separated from each other.”

To conclude, claim 63 (and claims dependent therefrom) corrects the above-discussed overly-narrow claiming error (*e.g.*, of independent claim 1), while at the same time sufficiently distinguishing over the art of record. That is, none of the references taken alone or in combination would have disclosed or suggested Applicant’s combination of features/limitations as recited in claim 63 (or claims 64-67 dependent therefrom). For example, while Djennas *et al.*’s FIG. 1 (see above) discloses a “flag-less” arrangement, such FIG. teaches away from Applicant’s claim 63 features/limitations of: “wherein a width of each of said first and second suspension leads supporting said semiconductor chip at the vicinity of said intersecting portion is **wider** than that of each said first and second suspension leads **at vicinities beyond said semiconductor chip.**” That is, it is noted that Djennas *et al.*’s FIG. 1 arrangement has “wide” portions that extend **beyond** the Djennas *et al.* chip. [Further, note that Djennas *et al.* is removeable as prior art given that it has an effective filing date of 22 March 1993, whereas Applicant’s foreign priority application has a filing date of 27 March 1992.]

The Office Action recognizes/admits that claims 63-67 distinguish over the art of record, given that no 102/103 rejections are applied within the Office Action against such claims. In conclusion, it is respectfully submitted that such claims 63-67 correct the above-discussed overly-narrow claiming error (e.g., of independent claim 1), while at the same time sufficiently distinguishing over the art of record (*i.e.*, like in the *Eggert* opinion discussed above).

Claims 68-72:

Recapture rebuttal continues with discussion regarding **independent claim 68** (and claims 69-72 dependent therefrom). Review of the patented claims revealed that such claim 2's limitations may be too narrow. More particularly, copies of Applicant's FIGS. 16 and 15 will be used for explanation as follows:



Applicant's FIGS. 16 and 15

Applicant's patented claim 2 (FIG. 16) contains the features/limitations: wherein each of said suspension leads includes a first portion (thin/diagonal lead) and a second portion 20 which is wider than said first portion, wherein said second portion (node 20) is **separated from** said chip mounting portion 3 and is positioned under said peripheral portion of said semiconductor chip 2, and wherein said semiconductor chip 2 is fixed at said second portion 20 of **each** of said suspension leads. Such claim 2 may be overly limiting with respect to the "separated from" and "each" limitations. More particularly, such claim may not cover Applicant's FIG. 15 embodiment which has second portions 20 **not "separated from"** the chip mounted portion 3, and may not cover a potentially infringing arrangement having a semiconductor chip fixed at **LESS THAN "each of said suspension leads"**. Accordingly, the "separated from" and "each" limitations are overly-limiting errors within the present patent, which is attempted to be corrected by the present Reissue application.

Added independent claim 68 avoids such overly-narrow limitations by instead reciting: wherein said chip mounting portion 3 (Applicant's FIG. 15) has a **first portion extending in a first direction** (upper left node 20 to lower right node) and a **second portion extending in a second direction** (lower left node 20 to upper right node) which is a different direction from said first direction, said second portion intersecting said first portion, wherein a **width of each of said first and second portions (nodes 20) of said chip mounting portion is wider** than that of each of said plurality of suspension leads, ...wherein an intersecting portion of said first and second portions of said chip mounting portion is located at a substantially central

portion of said rear surface of said semiconductor chip, wherein said both ends of each of said first and second portions of said chip mounting portion are located toward the peripheral portions of said rear surface of said semiconductor chip.

Further, such claim contains the limitations “wherein said rear surface of said semiconductor chip is fixed to said chip mounting portion by an adhesive at at least two shift-preventing positions separated from each other”, similar to those discussed previously with respect to other groups of Applicant’s reissue claims.

To conclude, claim 68 (and claims dependent therefrom) corrects the above-discussed overly-narrow claiming error (*e.g.*, of independent claim 2), while at the same time sufficiently distinguishing over the art of record. That is, none of the references taken alone or in combination would have disclosed or suggested Applicant’s combination of features/limitations as recited in claim 68 (or claims 69-72 dependent therefrom). The Office Action recognizes/admits that claims 68-72 distinguish over the art of record, given that no 102/103 rejections are applied within the Office Action against such claims.

SUPPLEMENTAL REISSUE OATH/DECLARATION

Rather than obtaining/filing a supplemental reissue oath/declaration at this stage of prosecution, and then possibly having to obtain/file other supplemental reissue oaths/declarations in the future at other stages of prosecution should the claims or other changes be made, Applicant respectfully submits that a supplemental reissue oath/declaration will be filed at the end of prosecution when all other issues/rejections have been resolved and no more claim or other changes are to be

made. Accordingly, when the supplemental reissue oath/declaration becomes the only issue barring allowance of the application, the Examiner is invited to call the undersigned at the local D.C. telephone number of 703-312-6600 to provoke accelerated preparation/filing of the final supplemental reissue oath/declaration to move the application to allowance.

EXTENSIVE PROSECUTION NOTED

Applicant and the undersigned respectfully note the extensive prosecution which has been conducted to-date with the present application, and thus Applicant and the undersigned would gratefully appreciate any considerations or guidance from the Examiner to help move the present application quickly to allowance.

RESERVATION OF RIGHTS

It is respectfully submitted that any and all claim amendments and/or cancellations submitted within this paper and throughout prosecution of the present application are without prejudice or disclaimer. That is, any above statements, or any present amendment or cancellation of claims (all made without prejudice or disclaimer), should not be taken as an indication or admission that any objection/rejection was valid, or as a disclaimer of any scope or subject matter. Applicant respectfully reserves all rights to file subsequent related application(s) (including reissue applications) directed to any/all previously claimed limitations/features which have been subsequently amended or cancelled, or to any/all limitations/features not yet claimed, *i.e.*, Applicant continues (indefinitely) to

maintain no intention or desire to dedicate or surrender any limitations/features of subject matter of the present application to the public.

EXAMINER INVITED TO TELEPHONE

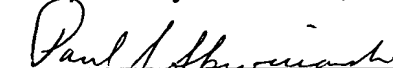
The Examiner is invited to telephone the undersigned at the local D.C. area number 703-312-6600, to discuss an Examiner's Amendments or other suggested action for accelerating prosecution and moving the present application to allowance.

CONCLUSION

In view of the foregoing amendments and remarks, Applicant respectfully submits that all claims in this reissue application are now in condition for allowance. Accordingly, allowance of all such claims is respectfully requested.

Applicant respectfully petitions the Commissioner for an appropriate extension of the shortened statutory period for response set by the Office Action dated 29 March 2004. A Form PTO-2038 authorizing payment of the requisite Petition and claim fees also is attached hereto. Please charge any deficits in fees to ATS&K Deposit Account No. 01-2135 (as Order No. 501.32049R00).

Respectfully submitted,



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Attachments:

Appendix
Form PTO-2038 (Fee Codes 1201/1252)